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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,076	09/09/2003	Robert Hickling	7674.3	1401
7590	06/28/2004		EXAMINER	
Robert Hickling			LOBO, IAN J	
8306 Huntington Road				
Huntington Woods, MI 48070			ART UNIT	PAPER NUMBER
			3662	

DATE MAILED: 06/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/658,076	HICKLING, ROBERT <i>J</i>
	<b>Examiner</b> Ian J. Lobo	<b>Art Unit</b> 3662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1-9 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. ____ .   |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/9/03</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: ____ .                                   |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2 and 5-9 are rejected under 35 U.S.C. 102(a) as being anticipated by the patent to Guigne ('311).

3. Claims 1, 2 and 5-9 are rejected under 35 U.S.C. 102(e) as being anticipated by the patent to Guigne ('311).

Guigne discloses an acoustic apparatus that includes an array of acoustic probes (see Figs. 1 and 2) near the surface of the ground, a source of intense sound pulses (112) of short duration for penetrating the porous structure of the ground, the probes in the array are connected to a multi-channel data acquisition system (185-187) for rapid conversion of analog to digital form and for temporary data storage. The multi-channel system provides input to a digital signal processor (162), the processor connected to a device (178) for outputting the results of the computations. Note that the processor

controls both the source of pulsed sound and the multi-channel data acquisition system.  
Claim 1 is so anticipated.

Claims 2, 5, 6, 7, 8 and 9 are further anticipated by the Guigne apparatus.

4. Claims 1, 2 and 5-9 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent to Wilk ('214).

Wilk discloses an acoustic apparatus that includes an array of acoustic probes (see Fig. 10) near the surface of the ground, a source of intense sound pulses (30) of short duration for penetrating the porous structure of the ground, the probes in the array are connected to a multi-channel data acquisition system (34, 36) for rapid conversion of analog to digital form and for temporary data storage. The multi-channel system provides input to a digital signal processor (94), the processor connected to a device (58) for outputting the results of the computations. Note that the processor controls both the source of pulsed sound and the multi-channel data acquisition system. Claim 1 is so anticipated.

Dependent claims 2 and 5-9 are further provided by the Wilk apparatus.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guigne ('311) or Wilk (214) when taken in view of Schaefer et al ('189) or Cannelli et al ('217).

Claim 3 differs from the above noted Wilk and Guigne apparatuses by claiming that the source of the pulsed sound is a "pyrotechnic system or a generator of electrical sparks". Wilk and Guigne each disclose piezoelectric generators.

Cannelli et al and Schaefer et al each teach the use of and advantages of electrical sparks as pulsed sound generators. Some of the advantages include omnidirectionality of the acoustic sound, mechanically robust and higher efficiency. Thus, in view of Cannelli et al and Schaefer et al, it would have been obvious to one of ordinary skill in the art to have modified the generators of Wilk or Guigne by substituting an electrical spark generator for the piezoelectric generators.

With respect to claim 4, see Schaefer et al, col. 2, lines 6-10.

#### ***Claim Rejections - 35 USC § 112***

7. Claim 4 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for pulsed sound sources, does not reasonably provide enablement for pulsed sound sources strengthened by an acoustic reflector. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. The structure of the claimed "reflector," which is claimed as a pulse sound strengthener, is not adequately disclosed in the instant specification.

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. It is noted that at this time the full translation of the PCT document is not available.
  
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian J. Lobo whose telephone number is (703) 306-4161. The examiner can normally be reached on Monday - Friday, 6:30 - 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H. Tarcza can be reached on (703) 306-4171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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Art Unit 3662